

REMARKS

This is in response to the Office Action that was mailed on February 9, 2007. Claim 15 is cancelled, without prejudice, to reduce issues herein. A formal amendment, involving no change in scope, has been made to claim 16. Claim 19 is recast in independent form. Claim 19 is also amended based upon disclosure in paragraph [0015] in the specification. No new matter is introduced by this Amendment. Claims 1-14 and 16-19 remain pending in the application.

Claims 15, 16, and 19 were rejected under the second paragraph of 35 USC §112 as failing to define the invention properly. Office Action, pages 2-3. Claim 15 has been cancelled, thereby obviating the rejection as to claim 15. Claim 16 has been amended to make it clear that the temperature range in question starts with 1600°C and extends to and includes 2800°C. With regard to flash cooling, required by claim 19, the Examiner argues that “cooling methods employing any of air, water or mist are understood to meet the claim limitation”. Applicants respectfully object. It is true that flash cooling may make use of air, water, or mist. However, not all cooling methods using air, water, or mist are *flash* cooling methods. As is well known to persons skilled in the art – and illustrated e.g. in US 4,059,919 (Green), US 4,164,484 (Tokuda), US 4,556,430 (Converse), US 5,343,705 (Athey), and US 6,672,484 (Newing) – flash cooling involves rapidity (e.g., a rapid evaporation of water induced by the application of a vacuum). It is respectfully submitted that this discussion and submission of evidentiary references satisfies the Examiner’s request for clarification with respect to flash cooling.

Claims 7-19 were rejected under 35 USC §103(a) as being unpatentable over US 6,537,470 B1 or WO 02/18120 A2, each in view of US 5,045,251 (Johnson). Office Action, pages 7-9. Inasmuch as the PCT publication is based upon the same U.S. patent application that the U.S. patent is based upon, it is not clear why the Examiner has cited both of these references. The Examiner is respectfully requested to indicate what disclosure is found in WO 02/18120 A2 that is not found in US 6,537,470 B1, and what disclosure is found in US 6,537,470 B1 that is not found in WO 02/18120 A2.

The Examiner acknowledges that the primary references “do not disclose a plurality of melt channels in the top and bottom half”. This is a reference to the requirement stated in claim 7 of “a plurality of melt supply channels … disposed in the top half and in the bottom half of the mold to operatively communicate with said annular mold cavity”. The Examiner argues, however, that the Johnson references allegedly “teaches that it is conventional in the art of resin transfer molding to employ multiple inlet ports in rapid resin cure application in order to reduce the flow distances (col. 1, lines 52-54)”. What the Examiner says here may be true. There are at least two major reasons, however, that these points made by the Examiner do not render the present invention obvious. First, a teaching about inlet *ports* does not disclose “melt supply channels … disposed *in the top half* and *in the bottom half* of the mold to operatively communicate with said annular mold cavity”, as required by Applicants’ claims. Second, the flow distances contemplated by the present invention are exactly the same as the flow distances taught in the primary references. The Examiner has shown no motivation or reason to reduce the flow distances in the primary references, and accordingly, it would not be obvious to modify the technology of the primary reference in view of the Johnson teachings. In any case, again, a teaching about inlet ports fails to disclose melt supply channels disposed in the top half and in the bottom half of a mold.

At the top of page 9, the Examiner refers to venting in the primary references and alleges that evaporation of volatile gases from the preform effects cooling by flash cooling. Applicants disagree that this venting amounts to flash cooling. In any case, claim 19 as amended specifies flash cooling by air, water, or mist, which clearly differentiates the present method over the evaporation of volatile gases referenced by the Examiner.

It is respectfully submitted that the Examiner has failed to state a sustainable rejection of any of claims 7-14 or 16-19 over US 6,537,470 B1 or WO 02/18120 A2 in view of Johnson.

Claim 19 was rejected under 35 USC §103(a) as being unpatentable over US 6,537,470 B1 or WO 02/18120 A2, each in view of Johnson and US 5,916,633 (Lackey). Office Action, page 9. The Examiner refers to Figure 10 of Lackey, which shows a water cooling jacket. However, flash cooling involves a rapidity (e.g., a rapid evaporation of water induced by the application of a vacuum) that is not found, for instance, in conventional circulation water cooling

such as that illustrated in Figure 10 of the Lackey patent. Accordingly, for this reason and for the reasons given above, it is respectfully submitted that the Examiner has failed to state a sustainable rejection of claim 19 over US 6,537,470 B1 or WO 02/18120 A2 in view of Johnson and Lackey.

Claims 7-19 were rejected on the ground of obviousness-type double patenting over claims 1-20 of US 6,537,470 B1 in view of Johnson. Office Action, pages 3-4. The Examiner acknowledges that the claims of the ‘470 patent “do not expressly claim a plurality of gates/melt channels to effect the impregnations”. This is a reference to the requirement stated in claim 7 herein of “a plurality of melt supply channels … disposed in the top half and in the bottom half of the mold to operatively communicate with said annular mold cavity”. The Examiner argues, however, that the Johnson references allegedly “teaches that it is conventional in the art of resin transfer molding to employ multiple inlet ports in rapid resin cure application in order to reduce the flow distances (col. 1, lines 52-54)”. There are at least two major reasons, however, why these points made by the Examiner do not establish of case of obviousness-type double patenting. First, a teaching about inlet *ports* does not disclose “melt supply *channels* … disposed *in the top half* and *in the bottom half* of the mold to operatively communicate with said annular mold cavity”, as required by Applicants’ claims. Second, the flow distances contemplated by the present invention are exactly the same as the flow distances taught in the primary references. The Examiner has shown no motivation or reason to reduce the flow distances in the reference patent claims, and accordingly, it would not be obvious to modify the technology of the reference claims in view of the Johnson teachings.

Claims 7-19 were rejected on the ground of obviousness-type double patenting over claims 1-5, 11, and 12 of US 6,939,490 B2. Office Action, pages 4-5. The Examiner acknowledges that the ‘490 patent “does not claim flow of resin from channels located in the top and bottom of the mold cavity”. The Examiner argues, however, that choosing which valves to operate … is conventional”. Since he has not addressed the “top” “bottom” features of Applicants’ claims, the Examiner has not stated a sustainable double patenting rejection of any of claims 1-14 and 16-19 over any claim of the ‘490 patent.

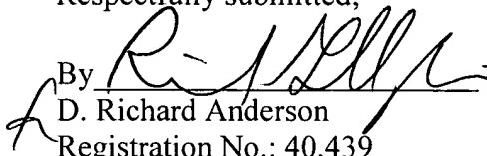
Claims 7-19 were rejected on the ground of obviousness-type double patenting over claims 5-17 of US 7,025,913 B2. Office Action, pages 5-6. The Examiner's statement of the rejection over the claims of the '913 patent fails to address the feature of the present claims of flow of resin from a plurality of melt supply channels located in the top and bottom of the mold cavity. It is respectfully submitted, therefore, that the Examiner has not stated a sustainable double patenting rejection of any of claims 1-14 and 16-19 over any claim of the '913 patent.

Should there be any questions concerning this application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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